

# Tri-Basin Irrigator

Volume 20, Issue 3

June 11, 2020

## PROGRAM INFORMATION

**EQIP:** APPLICATION PRE-APPROVALS HAVE STARTED. PRE-APPROVED APPLICANTS ARE BEING CONTACTED TO START THE CONTRACTING PROCESS.

**CSP:** 2020 APPLICATION SIGN-UP DEADLINE HAS PASSED. APPLICATION INTERVIEWS ARE TAKING PLACE.

**NSWCP:** NEW FUNDS COME JULY 1<sup>ST</sup> SO GET YOUR IRRIGATION APPLICATIONS IN BY AUGUST 31<sup>ST</sup> FOR FIRST CHANCE APPROVALS.

**ENERGY EFFICIENCY GRANT:** SIGN-UP DEADLINE FOR 2021 FUNDS IS OCTOBER 31, 2020. FOR MORE INFORMATION CONTACT KELLEY AT RURAL DEVELOPMENT AT THE KEARNEY USDA SERVICE CENTER AT 308-455-9837 OR [KELLEY.MESSENGER@USDA.GOV](mailto:KELLEY.MESSENGER@USDA.GOV).

## CALENDAR OF EVENTS

**JUNE 14:** FLAG DAY

**JUNE 21:** FATHER'S DAY

**JULY 3:** INDEPENDENCE DAY OBSERVED – GOV'T OFFICES CLOSED

**JULY 4:** INDEPENDENCE DAY

**JULY 6:** CNPPID BOARD OF DIRECTORS MEETING

**JULY 14:** TBNRD BOARD MEETING

## Tool to Determine Crop Water Use – Part 2

In the last issue, you were introduced to the 2020 NAWMN. This network is a tool for area and participating producers to determine how much water their crops are using. The following is an example of how to use this tool.

**Step 1:** You need to know the crop stage of the crop in the field you are working with. There are descriptions at the bottom of page 3 in each issue of this newsletter to assist you. Once you know your crop stage, you can determine your crop coefficient (Kc), also found on page 3. In our example, corn is at 12 leaf, so the Kc equals 0.88.

**Step 2:** Go to one of the two websites found on page 3 of each newsletter (under "NAWMN Sites"). Select an atmometer station nearest your field and determine the amount of evaporation (reference ET) that has taken place. A general map of atmometer locations is shown on page 3. In this example, evaporation will be 1.8 inches for the week.

**Step 3:** Calculate ET or Crop Water Use. Multiply evaporation (reference ET) by your crop stage coefficient (Kc): 1.80 inches \* 0.88 Kc = 1.584 inches used by your corn for the respective week. To calculate average daily water use, divide by 7 days: 1.584 inches / 7 days = 0.226 inches used per day.

As a side note, when you go to either of these websites, there will be charts showing you weekly crop water use, thus eliminating your need to calculate the weekly use.

As one gets used to this tool, one can tweak it to better work for their irrigation water management program. Knowing the weather forecast, one can project an estimated crop water use over the next few days.

In addition, I am emailing weekly crop water use for the NAWMN sites to those who receive this newsletter via email.

If you have any questions, call Curtis Scheele at 308-995-6121, Ext. 3 or email to [curtis.scheele@usda.gov](mailto:curtis.scheele@usda.gov).

## CURTIS'S COLUMN



United States Department of Agriculture

Natural Resources Conservation Service

### Staffing Updates in NRCS Offices Across the TBNRD:

- New: Levi Adam, RC – Holdrege
- New: Jessica Johnson, SC – Holdrege
- New: Jack Gibbens, RMS – Elwood
- Retired: Steve Beadle, SCT – Elwood – To be replaced
- Change: Lisa Berkeypile, RC – formerly Elwood – To be replaced
- Change: Lisa Berkeypile, RC – Minden – Replaced Michael Perry

## Free ET Data Texting Service

See attached Flyer for more info.

### CSP Contract Holders

### REMINDER on Applied Fertilizer

As we head into fertigations, in order to receive fertilizer related enhancement payments, total fertilizer applied must meet UNL recommendations.

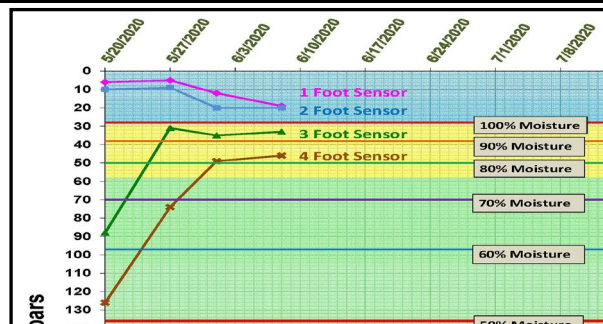
### Would You Have Known Moisture Levels to 4 Feet?

Update on last issues dryland corner moisture levels. The 3.30 inches of rain over Memorial weekend continued to work down to 4 feet. This field got another 1.10 inches of rain the first week of June. As of June 8<sup>th</sup>, the 3<sup>rd</sup> foot remains nearly full and the 4<sup>th</sup> foot is up to 83% moisture. See charts below.

This dryland field is a great example of showing moisture and its movement in the soil. Soil moisture sensors show what's going on in the soil. In knowing this, one can use soil moisture sensor information on irrigated fields to help manage irrigations, ultimately saving money and helping protect our water supply.

#### 2020 Dry (1 site near Holdrege) - NT Corn into Beans

Soil Depth	5/20/2020	5/27/2020	6/8/2020
1 foot	100%	100%	100%
2 foot	100%	100%	100%
3 foot	63%	97%	95%
4 foot	53%	68%	83%
4 ft. avg.	79%	91%	95%



## CNPPID NOTES



### Precipitation Report and Irrigation Begins:

So far this season, we've seen some steady precipitation, particularly on the east end of the Central Nebraska Public Power & Irrigation District system. From April 1 to June 1, rainfall across the District is as follows: Elwood Reservoir had 4.15 inches; Bertrand had 4.65 inches; Holdrege had 4.82 inches; Minden had 8.91 inches.

The District issued out a number of pump-in permits. These annual permits allow customers to pump rainwater off their fields and into Central's canals to help dry up the customer's fields. Central made many operational improvements in the non-irrigation season, adding additional overflow structures, gates, etc. to help during these heavy rain events. These improvements yielded positive results during this last heavy rain event.

As a reminder, Central's scheduled irrigation first run began on June 8<sup>th</sup>, and we ask that the Irrigation Service Specialists and customers communicate daily on water schedules. This open dialogue allows the ISS to deliver the water on time, and helps Central's system run efficiently.

Find us at [www.cnppid.com](http://www.cnppid.com) or @CNPPID on Facebook, Instagram, Twitter and LinkedIn.

## TRI-BASIN NRD NEWS



### Chemigation Reminder:

Do you plan to apply fertilizer or ag chemicals to your fields through your center pivot or drip irrigation system? If so, you must have a chemigation permit from Tri-Basin NRD for each injection point. Call TBNRD at 1-877-995-6688 for more information about the permitting process.

**If you already have chemigation permits, it is a good idea to check your safety equipment over at least once a year to make sure all the equipment is in working order.**

In the TBNRD chemigation safety equipment inspections are required every three years. At the inspection, the well and irrigation system need to start and operate at normal pressure for at least one minute. Then the following will be checked:

- water discharges from low pressure drain & stops as system's pressure increases
- 20 ft of hose attached to low-pressure drain to carry contaminated water away from well
- chemical injection line check valve is free of leaks

During shutdown of the system:

- injection pump shuts off when system shuts off
- air is drawn into pipeline through vacuum relief valve
- irrigation pipeline check valve is watertight
- water discharges from low pressure drain & then stops (if pipeline check valve is not leaking)

## Free ET Data Texting Service

See attached Flyer for more info.

## NEBRASKA EXTENSION EXTRAS



### What is a Langley?

For growers, who switched from our free toll-free Water Hotline to the free daily irrigation email updates from Dusty Way at CNPPID; you may have noticed a new "solar Langley" chart. And, may be asking: "What is a Langley?"

Al Dutcher, Nebraska Extension State Climatologist, says that a Langley is a unit for measuring solar radiation energy. It measures the total light energy from the entire disk of the Sun that is received at a specific point. One Langley has the equivalent energy of 0.086 watts per square meter. Or, one Langley per minute = 697.3 watts per square meter.

To put Langley's in perspective, values about 500 Langley's per day are common on most sunny days. Solar radiation will drop below 300 Langley's on a cloudy day and below 150 Langley's during overcast conditions and light drizzle. Langley values drop below 100 on moderate rainfall and/or foggy days.

For crop development, as solar radiation to the plant decreases; corn growth and development slows, extending the grain fill period. This condition occurred last year in central Nebraska.

### Rootless Corn Syndrome:

High winds have triggered some concerns about corn falling over or flopping in the wind. Generally, corn in current V4 to V6 (6-leaves) growth stages have well established thicker secondary root development (much stronger than early primary roots. However, if the corn plants lack secondary (nodal) root systems; then "rootless" or "floppy" corn syndrome may result.

The most common rootless corn factor is saturated soils preventing adequate root development and/or seed-slot sidewall compaction due to too wet of conditions at planting time. Also, if the plant crowns became exposed, then the secondary roots may have dried and sluffed off before growing into the soil. Crowns can be exposed if heavy rains compacted the seedbed or washed away the soil around the developing crown.

Shallow planting may have been a problem in a few cases. Although shallow planting can expose crowns and cause poor secondary root development, most observed fields with "rootless corn" this year appear to have been planted at the recommended depth.

Bob Nielsen, Purdue University Corn Specialist, says that even if corn plants have fallen over, new secondary roots can continue to form and establish a viable root system if moisture is not limiting. Inter-row lay-by cultivation to move soil around the exposed crowns can help if not too many plants have fallen over.

### New 2020 Dicamba-Resistant Herbicide Rules:

On June 3<sup>rd</sup>, U.S. Ninth Circuit Court in California issued an immediate registration cancellation for three dicamba-resistant Roundup Ready 2 Xtend® soybean herbicides including: XtendiMax®, FeXapan®, and Engenia®. The new Tavium®, a pre-mix Roundup Ready 2 Xtend® of dicamba and S-metolachlor, was not part of the court order, since it was not included in the original Environmental Protection Agency (EPA) re-approval conditional registration in 2016.

Then, on June 8<sup>th</sup>, EPA provided clarity as follows:

**Growers and commercial applicators may use existing stocks that were in their possession on June 3, 2020. Such is must be consistent with the product's previously-approved label, and may not continue after July 31, 2020.**

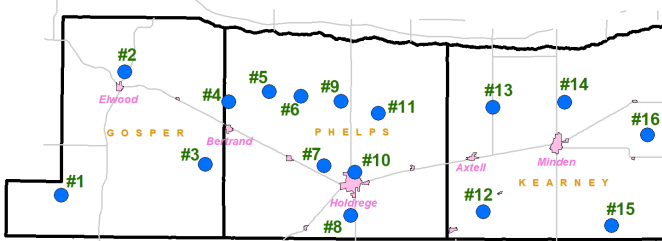
Find the latest EPA provisions on our Nebraska Extension [cropwatch.unl.edu](http://cropwatch.unl.edu) website.

## NAWMN CROP ET INFORMATION

Additional Information and other ET resources can be found at websites listed under "Crop ET Information" below.

$$\text{Inches of Crop Water Use (ET)} = \text{Evaporation} \times K_c$$

	May 25 – May 31		June 1 – June 7	
Site	Evaporation	Rain	Evaporation	Rain
1	1.80	0.00	2.90	1.54
2	1.70	0.00	2.70	0.00
3	1.60	0.00	2.70	0.06
4	1.50	0.00	2.70	0.09
5	NA	NA	NA	NA
6	1.30	0.00	2.20	0.20
7	1.80	0.27	2.70	0.46
8	1.50	0.23	2.50	0.07
9	NA	NA	2.40	0.02
10	NA	NA	NA	NA
11	1.50	0.00	2.60	0.27
12	1.70	0.00	2.40	0.10
13	1.60	0.00	3.00	0.05
14	1.40	0.00	3.00	0.38
15	1.30	0.00	3.30	0.18
16	1.60	0.90	2.80	0.00



2020 Map of NAWMN Sites across the Tri-Basin NRD.

### Crop Coefficients (Kc)

Corn		Soybeans	
Stage	Kc	Stage	Kc
2 leaf	0.10	Cotyledon (VC)	0.10
4 leaf	0.18	1st Node (V1)	0.20
6 leaf	0.35	2nd Node (V2)	0.40
8 leaf	0.51	3rd Node (V3)	0.60
10 leaf	0.69	Beg. Bloom (R1)	0.90
12 leaf	0.88	Full Bloom (R2)	1.00
14 leaf	1.01	Beg. Pod (R3)	1.10
16 leaf	1.10	Full Pod (R4)	1.10
Silk – Beg. Dent	1.10	Beg. Seed (R5)	1.10
¼ Milk Line	1.04	Full Seed (R6)	1.10
Full Dent (½ Milk)	0.98	Yellow Leaf (R6.5)	1.00
¾ Milk Line	0.79	Beg. Mat. (R7)	0.90
Black Layer	0.60	Full Mat. (R8)	0.20
Full Maturity	0.10	Mature	0.10

### CROP STAGE INFORMATION

**Corn (V4-4 Leaf to V10-10 Leaf stage):** At V6, the growing point and tassel are above the soil surface. The stalk is beginning a period of increased elongation. Nutrients and water are in greater demand starting at 10 leaf.

Avg. daily water use from June 1 – June 7 was 0.06"-0.24".

**Soybeans (V1-1<sup>st</sup> Node to V5-5<sup>th</sup> Node stage):** Nitrogen-fixation starts around the V2-V3 stages. The number of nodules formed and the amount of nitrogen fixed increases with time until R5.5 when it drops off sharply.

Avg. daily water use from June 1 – June 7 was 0.06"-0.30".

June 1-June 7 (14 of 16 NAWMN sites reporting): Average weekly rainfall was 0.21 (range 0.00 to 1.54). Average weekly ET for corn was 0.91 and for soybeans was 1.40.

### CROP ET INFORMATION

**NAWMN Sites:**

<https://www.cnppid.com/weatheret-data/nebraska-agricultural-water-management-network/>

<https://nawmn.unl.edu/ETdata/DataMap>

Email: NRCS: 308-995-6121, Ext. 3

**CropWatch:** <https://cropwatch.unl.edu/gdd-etdata>

**CNPPID:** <https://www.cnppid.com/weatheret-data/>

**Texting:** TBNRD: 308-995-6688 or UNL: 308-995-4222

**Email:** CNPPID: 308-995-3555

Corn Stage		DESCRIPTION
V6	6 Leaves	Leaf stage is defined by number of leaves with visible collars. The collar is a discolored line where the leaf meets the stalk. This line circles the stalk. <b>TIP:</b> Mark the 6th leaf or a higher leaf by cutting a notch in it or some other way so as to know that leaf number. Reason is the lower leaves will be lost as the plant develops. Flag or somehow mark the plant in the field as a reference plant when determining later leaf (vegetative) stages.
V9	9 Leaves	
V12	12 Leaves	
Soybean Stage		DESCRIPTION
V2	2nd Node	2 nodes on the main stem with 2 trifoliates. The trifoliates have unfolded leaflets that no longer touch on the edges. (3 nodes total = 1 unifoliate + 2 trifoliates)
V4	4th Node	V4 has 4 nodes on the main stem with 4 trifoliates. (5 nodes total = 1 unifoliate + 4 trifoliates)
R1	Beginning Bloom	At least one open flower is present at any main stem node.

## LAKE AND RIVER LEVELS

CNPPID Reservoir Elevation and Platte River Flow data listed below and other locations can be found on CNPPID's website at <http://cnppid.com/wp-content/uploads/2016/06/lakeRiverData.html>.

	June 11, 2020, 8:00 AM	1 Year Ago
Capacity of Lake McConaughy	85.9%	NA
Inflows to Lake McConaughy	1260 cfs	3290 cfs
Flows on the North Platte at North Platte	NA cfs	282 cfs
Flows on the South Platte at North Platte	NA cfs	737 cfs
Flows on the Platte at Overton	NA cfs	3060 cfs

**DAD:**

*A son's first hero and a daughter's first love.*

- ?????

## WEBSITES OF INTEREST

Soil Health:

[www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/](http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/)

Climate

[agclimatenebbraska.weebly.com](http://agclimatenebbraska.weebly.com)

NRCS Nebraska

[www.ne.nrcs.usda.gov](http://www.ne.nrcs.usda.gov)

Central Irrigation District

[www.cnppid.com/](http://www.cnppid.com/)

TBNRD Home Page

[www.tribasinrrd.org/](http://www.tribasinrrd.org/)

Farm Service Agency

[www.fsa.usda.gov](http://www.fsa.usda.gov)

UNL Cropwatch

[cropwatch.unl.edu](http://cropwatch.unl.edu)

UNL Extension

[extensionpubs.unl.edu/](http://extensionpubs.unl.edu/)

K-State SDI Website

[www.ksre.ksu.edu/sdi](http://www.ksre.ksu.edu/sdi)

No-till On The Plains

[www.notill.org](http://www.notill.org)

## RAINFALL

Rainfall amounts listed below and other locations come from NeRAIN which can be found at website

<https://nednr.nebraska.gov/NeRain/Maps/maps>.

Location:	May 28 – June 10	May 1 – June 10
Elwood 0.26 mi. S:	1.20	3.60
Bertrand 6.1 mi. SE:	0.83	5.36
Holdrege 0.99 mi. E:	0.43	4.81
Minden 7.2 mi. W:	0.32	7.50
Minden 5.8 mi. E:	0.69	8.71

**Average Rain for May in Holdrege = 4.06 Inches**

\*\*\* If you wish to receive this newsletter via e-mail, or have any questions, comments or ideas, feel free to contact Curtis Scheele at the NRCS office in Holdrege or you can email him at [curtis.scheele@usda.gov](mailto:curtis.scheele@usda.gov). \*\*\*

## USDA - Natural Resources Conservation Service

1609 Burlington Street  
1005 South Brown Street

PO Box 798  
Holdrege, NE 68949-0798  
308-995-6121, Ext. 3

309 Smith

PO Box 41  
Elwood, NE 68937-0041  
308-785-3307, Ext. 3



Street

Minden, NE 68959-2601

308-832-1895, Ext. 3

## Central Nebraska Public Power & Irrigation District

415 Lincoln Street  
PO Box 740  
Holdrege, NE 68949  
308-995-8601



## Tri-Basin Natural Resources District

1723 Burlington Street  
Holdrege, NE 68949  
308-955-6688



## Nebraska Extension



1308 2<sup>nd</sup> Street  
Holdrege, NE 68949

308-995-4222

PO Box 146  
Elwood, NE 68937

308-785-2390

424 North Colorado  
PO Box 31  
Minden, NE 68959  
308-832-0645

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# Free ET Data Texting Service

A texting service for ET Data is replacing the Water Use Hotline.

You can opt-in to receive updates by texting **ETDATA** to **80123**. You can also call the Tri-Basin NRD (308-995-6688) to request to be added to the ET Data texting.

ET Data (Evapotranspiration Data) can be useful in making decisions about your irrigation, fertilizer and chemical application schedule. Texts are sent Monday through Friday during irrigation season. The texts contain:

Daily (D) and Future 3 Days (F3d) estimated water use for both Corn and Soybeans (Beans) at three locations across the district: Holdrege 5N (Hld), Axtell 5NE (Axt) and Smithfield 2E (Smfld).

**Text: ETDATA**  
**To: 80123**

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